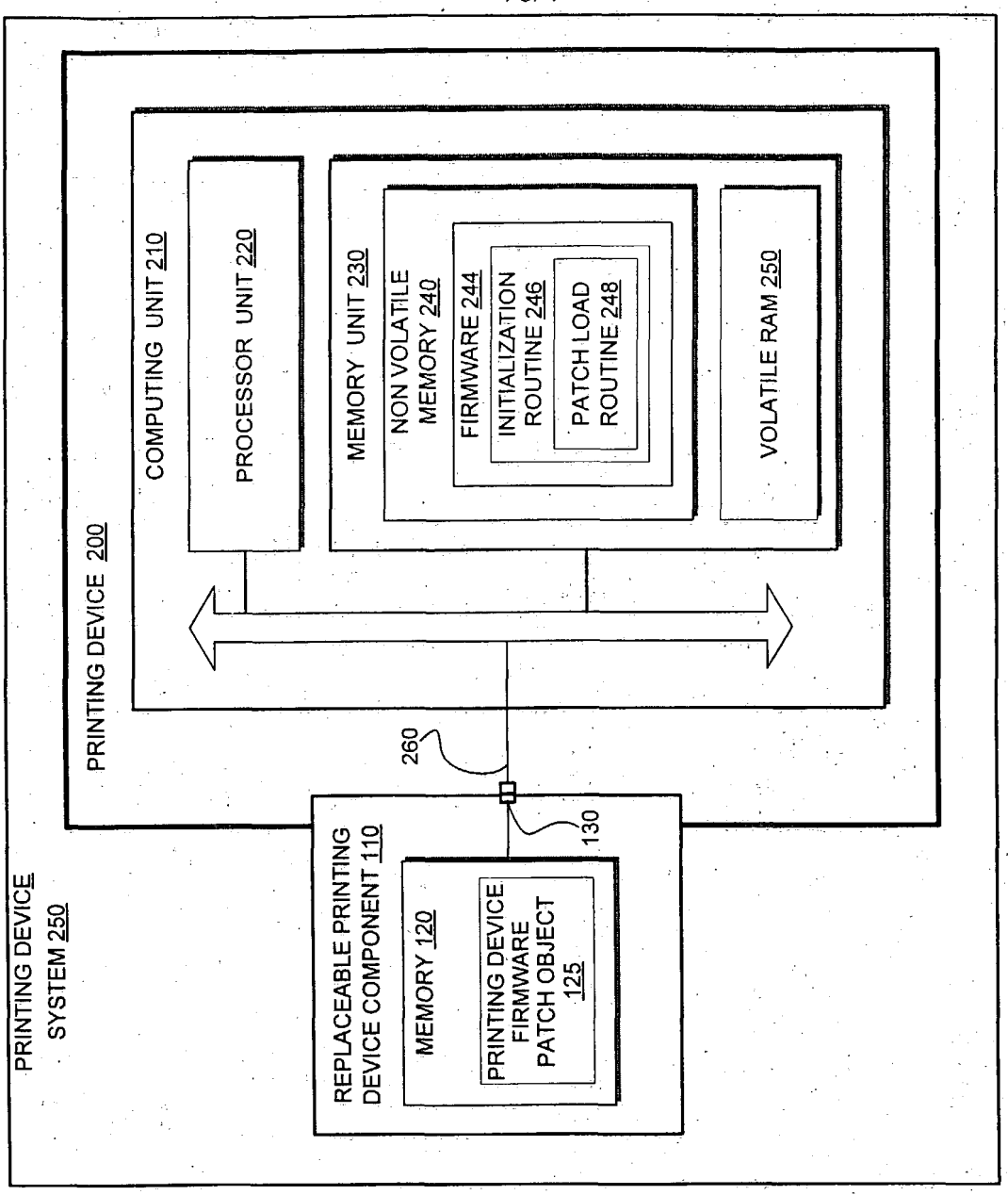
PRINTING DEVICE SYSTEM 250
PRINTING DEVICE 200
COMPUTING UNIT 210
PROCESSOR UNIT 220
MEMORY UNIT 230
NON VOLATILE MEMORY 240
FIRMWARE 244
INITIALIZATION ROUTINE 246
PATCH LOAD ROUTINE 248
VOLATILE RAM 250
260
130
REPLACEABLE PRINTING DEVICE COMPONENT 110
MEMORY 120
PRINTING DEVICE FIRMWARE PATCH OBJECT 125

Fig. 2

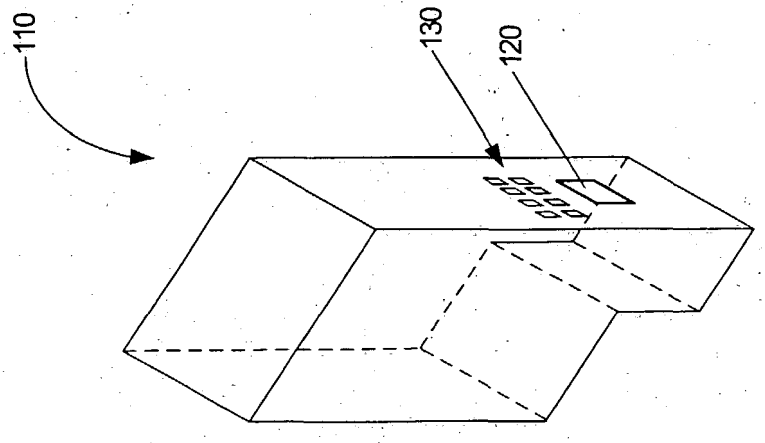
110
130
120

Fig. 1

300

DESCRIPTION	LENGTH:
OBJECT HEADER 304	
OBJECT ID 312	8 BITS
OBJECT DATA LENGTH 316	8 BITS
OBJECT DATA 308	AS SPECIFIED IN OBJECT DATA LENGTH FIELD

Fig. 3

400

OBJECT HEADER 404		OBJECT DATA 408				
OBJECT ID = FIRMWARE PATCH ID 412	OBJECT DATA LENGTH = N 416	PATCH ID AND APPLICABILITY 420	FIRMWARE VERSION LOWER BOUND 424	FIRMWARE VERSION UPPER BOUND 428	PATCH START ADDRESS 432	PATCH DATA 436

Fig. 4

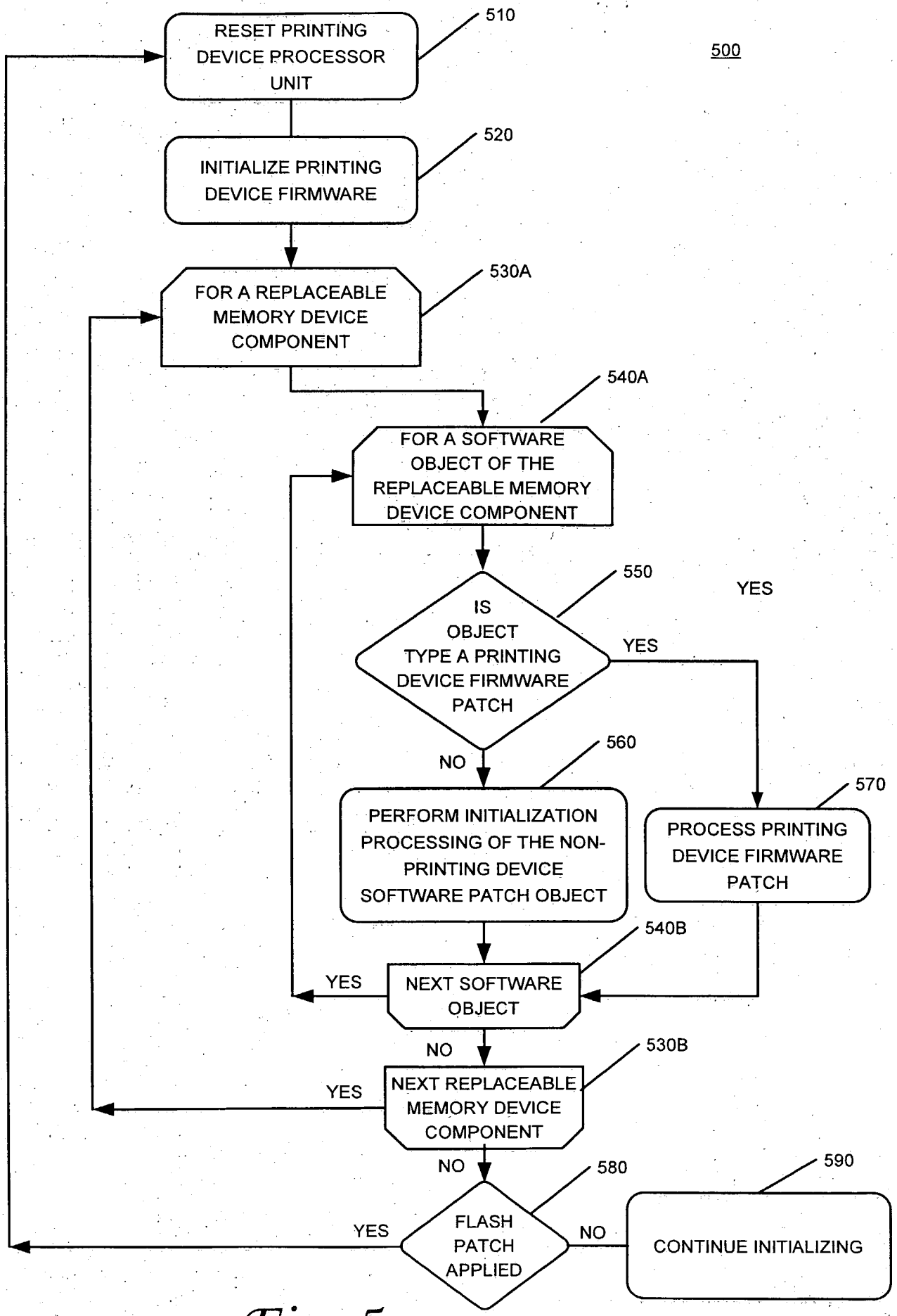
500
RESET PRINTING DEVICE PROCESSOR UNIT
510
INITIALIZE PRINTING DEVICE FIRMWARE
520
FOR A REPLACEABLE MEMORY DEVICE COMPONENT
530A
FOR A SOFTWARE OBJECT OF THE REPLACEABLE MEMORY DEVICE COMPONENT
540A
IS OBJECT TYPE A PRINTING DEVICE FIRMWARE PATCH
550
YES
YES
NO
PERFORM INITIALIZATION PROCESSING OF THE NON-PRINTING DEVICE SOFTWARE PATCH OBJECT
560
PROCESS PRINTING DEVICE FIRMWARE PATCH
570
NEXT SOFTWARE OBJECT
540B
YES
NO
NEXT REPLACEABLE MEMORY DEVICE COMPONENT
530B
YES
NO
FLASH PATCH APPLIED
580
YES
NO
CONTINUE INITIALIZING
590

Fig. 5

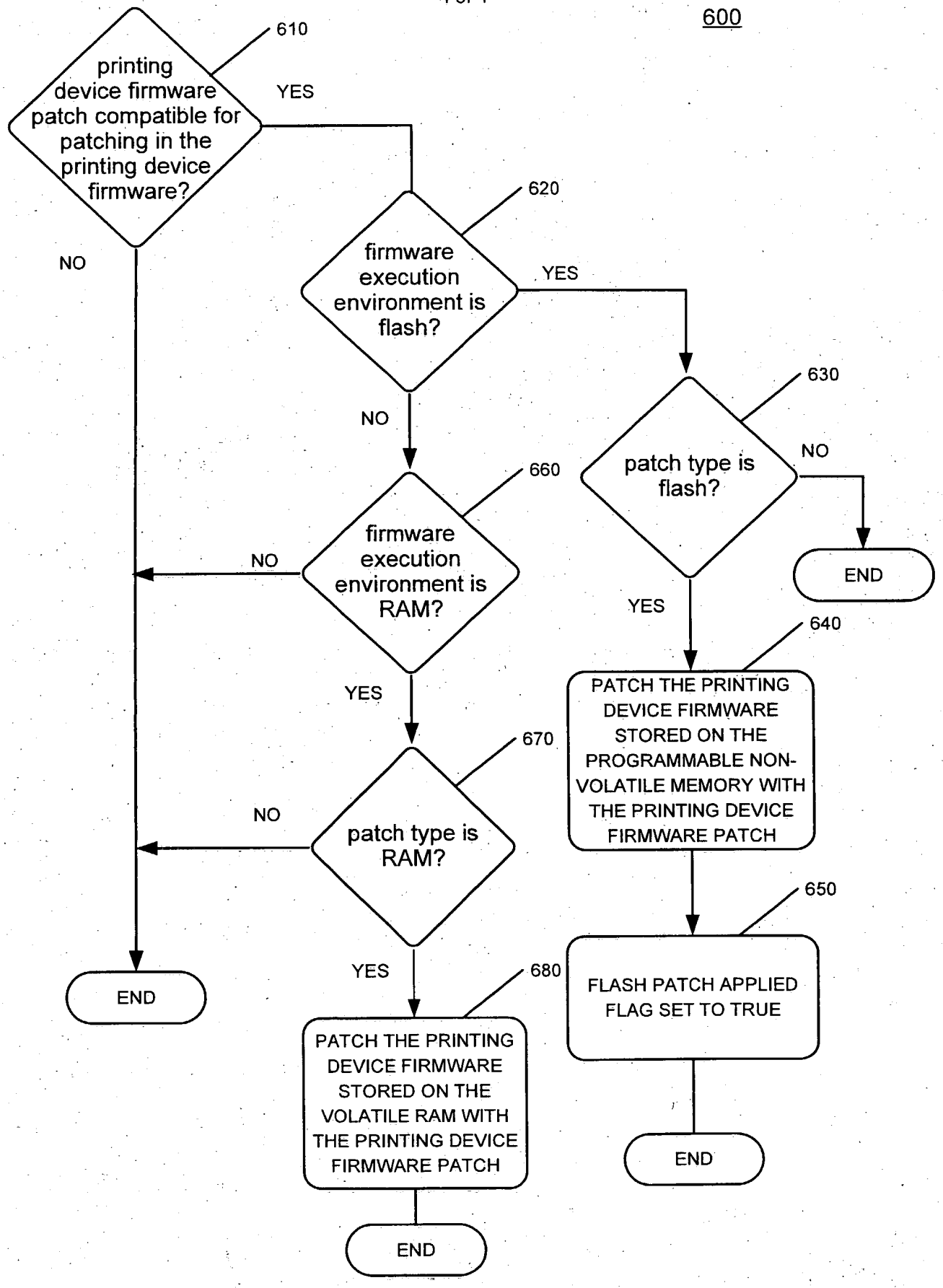
600
610
printing device firmware patch compatible for patching in the printing device firmware?
YES
NO
620
firmware execution environment is flash?
YES
NO
630
patch type is flash?
NO
END
YES
640
PATCH THE PRINTING DEVICE FIRMWARE STORED ON THE PROGRAMMABLE NON-VOLATILE MEMORY WITH THE PRINTING DEVICE FIRMWARE PATCH
650
FLASH PATCH APPLIED FLAG SET TO TRUE
END
660
firmware execution environment is RAM?
NO
YES
670
patch type is RAM?
NO
YES
680
PATCH THE PRINTING DEVICE FIRMWARE STORED ON THE VOLATILE RAM WITH THE PRINTING DEVICE FIRMWARE PATCH
END
END

Fig. 6